

SECTION 1: BIOLOGY AND BIOMEDICAL SCIENCES

Contents; Field Definitions

systemic biology. Increasingly, molecular genetics is providing a common thread to a degree that work in physiology may be almost indistinguishable from that in structural biology.

Some schools aid students seeking guidance through these thickets by providing a university-wide center for receiving and responding to applications for graduate study. Others leave this task to each department separately, and the student may find that he or she has missed a precious opportunity by not seeking full information on the range of opportunities available throughout the institution.

This organizational turmoil is testimony to the exciting pace of contemporary biological research and its application to every facet of human affairs.

Graduate students in biology are expected to have a good basic grounding in physics, chemistry, and mathematics, as well as curricular experience in various biological subjects depending on the discipline. Ph.D.'s have wide-ranging job opportunities at universities, in government, and in industry, the excitement in biotechnology being only the most recent manifestation. Some students may find a broad-ranging department of biology most suited to their interests and level of training; others with a firm idea of the specialized interest will thrive in a small department that matches this precisely. Above all the student must be informed about the complexity of these various programs in order to make an appropriate choice.

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Biology

Biology, "the science of life," is a comprehensive term covering all aspects of the structure, function, development, and behavior of living organisms. Its boundaries with physical, earth and marine, and behavioral sciences are not easily defined. Considerations of the origin of life also link biology to cosmology and planetary astronomy; methodological analogies to computer science and mathematics; and the applications of biology to medicine, biological engineering, and agriculture.

The organization of biological studies varies greatly from institution to institution in a way that can be most confusing to the student not familiar with these bureaucratic niceties. At some institutions, a single department embraces most or all of the subdisciplines. Others may divide biology by taxonomic categories, e.g., zoology, botany, bacteriology, and protozoology. Still others (especially medical schools) distinguish functional subdisciplines, such as biochemistry, biophysics, anatomy, physiology, microbiology, genetics, pharmacology, pathology, immunology, and neurobiology. Elsewhere, biology is organized into molecular biology, developmental biology, structural biology, and organismic and